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## THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A peptide which comprises:
  - (a) the sequence shown in SEQ ID NO:1; or
  - 5 (b) the amino acid sequences:  
His<sup>736</sup>GlyTrpSerTyrGlyGlyTyrLeu;  
Leu<sup>816</sup>AspGluAsnValHisPheAlaHis; Glu<sup>847</sup>ArgHisSerIleArg and  
Phe<sup>255</sup>ValLeuGlnGluGluPhe, and which has the substrate  
specificity of the sequence shown in SEQ ID NO:1; or
  - 10 (c) the sequence which has at least 60% identity  
with the sequence shown in SEQ ID NO:1, and which has the  
substrate specificity of the sequence shown in SEQ ID  
NO:1.
- 15 2. A peptide according to claim 1 (c), wherein the  
amino acid identity is at least 75%.
3. A peptide according to claim 1 (c) wherein the  
amino acid identity is at least 95%.
- 20 4. A fragment of the sequence shown in SEQ ID NO:1  
which has the substrate specificity of the sequence shown  
in SEQ ID NO:1.
- 25 5. A fragment according to claim 4 which consists  
of the sequence shown in SEQ ID NO.s: 3, 5 or 7.
6. A peptide according to claim 1, wherein an  
asparagine residue in the peptide is not linked to a  
30 carbohydrate molecule.
7. A peptide according to claim 1, wherein the  
peptide is not expressed on the cell surface membrane of a  
cell.

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8. A fusion protein comprising the amino acid sequence shown in SEQ ID NO:1 linked with a further amino acid sequence, the fusion protein having the substrate specificity of the sequence shown in SEQ ID NO:1.

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9. A fusion protein according to claim 8 wherein the further amino acid sequence is selected from the group consisting of GST, V5 epitope and His tag.

10 10. A method of identifying a molecule capable of inhibiting cleavage of a substrate by DPP8 comprising the following steps:

(a) contacting DPP8 with the molecule;

(b) contacting DPP8 of step (a) with a substrate  
15 capable of being cleaved by DPP8, in conditions sufficient for cleavage of the substrate by DPP8; and

(c) detecting substrate not cleaved by DPP8, to identify that the molecule is capable of inhibiting cleavage of the substrate by DPP8.

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11. A method of identifying a molecule capable of inhibiting specifically, the cleavage of a substrate by DPP8, the method comprising the following steps:

(a) contacting DPP8 and a further protease with the  
25 molecule;

(b) contacting DPP8 and the further protease of step (a) with a substrate capable of being cleaved by DPP8 and the further protease, in conditions sufficient for cleavage of the substrate by DPP8 and the further  
30 protease; and

(c) detecting substrate not cleaved by DPP8, but cleaved by the further protease, to identify that the molecule is capable of inhibiting specifically, the cleavage of the substrate by DPP8.

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12. A method of reducing or inhibiting the catalytic activity of DPP8, the method comprising the step of contacting DPP8 with an inhibitor of DPP8 catalytic activity.

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13. A method of cleaving a substrate comprising the step of contacting the substrate with DPP8 in conditions sufficient for cleavage of the substrate by DPP8.

10 14. A method of detecting an activated T cell, the method comprising the step of measuring the level of DPP8 gene expression in a T cell.

15 15. A method according to claim 14, wherein the level of DPP8 gene expression is detected by detecting the amount of DPP8 RNA in the cell.

16. A nucleic acid molecule which:  
(a) encodes the sequence shown in SEQ ID NO:1; or  
20 (b) consists of the sequence shown in SEQ ID NO:2; or  
(c) is capable of hybridizing to a nucleic acid molecule consisting of the sequence shown in SEQ ID NO:2 in stringent conditions, and which encodes a peptide which has the substrate specificity of the sequence shown in SEQ  
25 ID NO:1.

17. A nucleic acid molecule according to claim 16 (c) wherein the molecule is capable of hybridising in high stringent conditions.

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18. A nucleic acid molecule according to claim 16 which is capable of hybridising to a gene which is located at band q 22 on human chromosome 15.

35 19. A nucleic acid molecule according to claim 16

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which does not contain 5' or 3' untranslated regions.

20. A fragment of a nucleic acid molecule consisting of the sequence shown in SEQ ID NO:2, which  
5 encodes a peptide which has the substrate specificity of the sequence shown in SEQ ID NO:1.

21. A fragment according to claim 20 which consists of the sequence shown in any one of SEQ ID NO.s: 4, 6 or  
10 8.

22. A vector comprising a nucleic acid molecule according to claim 16.

15 23. A cell comprising a vector according to claim 22.

24. A composition comprising a peptide according to claim 1.  
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25. An antibody which is capable of binding to a peptide according to claim 1.

26. An antibody according to claim 25 which is  
25 produced by a hybridoma cell.

27. A hybridoma cell capable of making an antibody according to claim 26.